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c/o Museum of Ontario Archaeology
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LONDON CHAPTER
OAS

March 2009 09-3

Flannery Surette, a PhD Candidate at Western, has agreed to be our speaker for **Thursday October 8th**. At the time of printing, the title of the presentation has not been formalized. However, she will be speaking on some aspect of Peruvian archaeology.

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Speaker's Night is held the 2nd Thursday of each month (January to April and September to December) at the Museum of Ontario Archaeology, 1600 Attawandaron Road, near the corner of Wonderland & Fanshawe Park Road, in the northwest part of the city. The meeting starts at 8:00 pm.

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Glass Tools at the Eagles Nest Site, Brantford, Ontario

by Gary Warrick

In the spring and early summer of 2003, an archaeological survey was conducted of lands bordering the Grand River in Brant County. The aim of the survey was to locate Six Nations cabins and settlements of the eighteenth and nineteenth century. The survey was quite successful leading to the discovery of a dozen sites, including the Eagles Nest site. The Eagles Nest site (AgHb-257) is situated in southern Brantford in a large cultivated field west of Erie Avenue. In June of 2003, the site was a cornfield and the surface scatter of artifacts stretched for 300 metres along the north (or east) bank of the Grand River. The site is multi-component, as are most sites along the lower Grand River. The site surface was littered with a large number of Onondaga chert flakes and Princess Point pottery intermixed with nineteenth-century artifacts (Figures 1 & 2). The main nineteenth-century occupation of Eagles Nest dates approximately 1820-1845. The artifact scatter is interpreted as the middens or debris field surrounding several former cabins. A few artifacts confirm an Aboriginal presence - a silver Luckenbooth brooch, a glass bead, and a gunflint.

The Eagles Nest site is located just downriver from a bend in the Grand River characterized by a high bluff on the south side and floodplain on the north side. The river has numerous gravel bars and small islands and is known as an excellent fishing spot by anglers today. In the nineteenth century, bald eagles nested in large trees on the high bank of Tutelo Heights, the origin of the name Eagles Nest (Waldie 1984:66). Over the last decade, bald eagles have returned to the Grand River to nest at preferred fishing locales.

The land survey field notes and maps of Lewis Burwell and WilliamWalker (Deputy Surveyors, Upper Canada) document an Aboriginal occupation of the flats opposite Tutelo Heights in the 1830s and as late as December, 1845, known as Eagles Nest. Maps made between 1812 and 1845 note a Cayuga settlement or individuals (e.g. Jacob Twofish) living at Eagles Nest. Oral history suggests that the Tutelo survivors of a cholera epidemic in 1832 relocated to Eagles Nest sometime in the late 1830s. By 1845, land ownership of the Eagles Nest Tract had been transferred to non-Aboriginal farmers and landowners (Figure 2). The flats at Eagles Nest are prone to spring flooding. Flooding of lands adjacent to the Grand River became an annual event after the early 1830s and would have made year-round habitation of the flats impossible.

Glass Tools

A total of 626 nineteenth century artifacts were surface collected from the Eagles Nest site in 2003. Glass artifacts are a significant percentage (18%) of all nineteenth-century artifacts recovered (n=112). In the process of identifying glass shards and measuring window glass thickness, I noticed that some of the glass shards exhibited either deliberate retouch or use-wear along one or more edges. Under 2x magnification, it was easy to confirm that some of the glass artifacts had actually been used as tools.

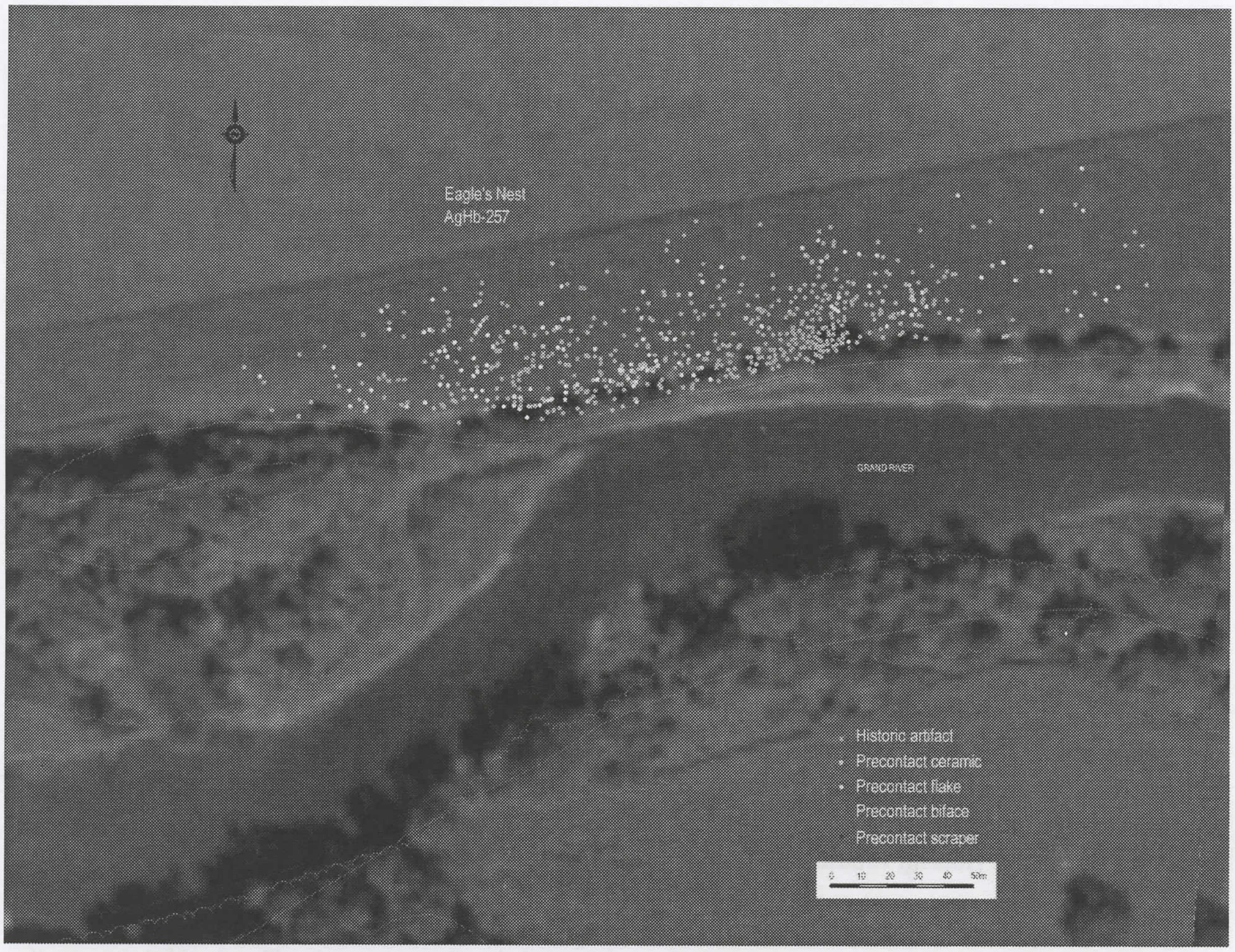

Figure 1. Eagles Nest site (AgHb-257) surface scatter.

A total of 28 glass tools and one stoneware tool were recovered from the surface of the Eagles Nest site, representing 26% of all glass artifacts collected (n=112). Data for each tool are provided in Table 1.

Spatially, the glass tools tend to cluster along the river edge of the site, with a concentration towards the eastern half of the site. Window glass tools were found only in the centre of the site (Figure 3).

Use Wear

Glass tools from Eagles Nest were viewed under 10x-60x magnification using a Nikon SMZ800 binocular microscope, Department of Anthropology, McMaster University. Digital photographs for this paper were taken with an attached Nikon DXM1200 camera and computer enhanced. A selection of artifacts was scanned (Figure 4).

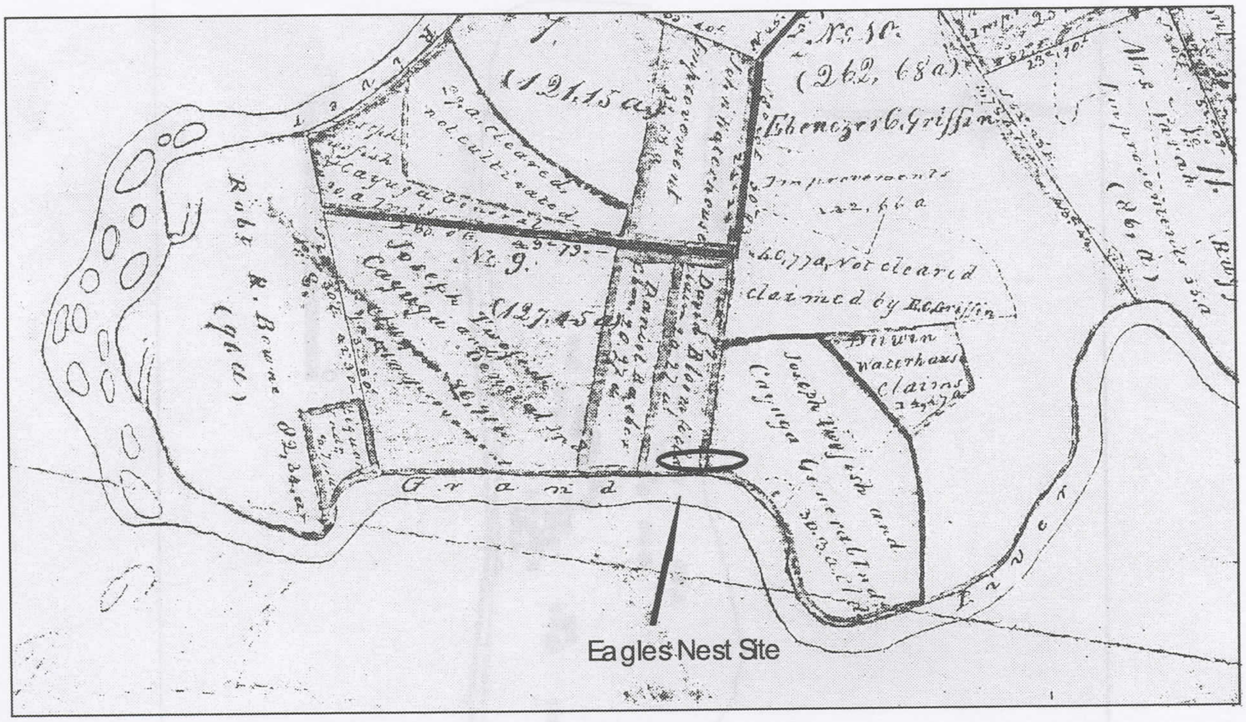

Figure 2. Eagles Nest site located on 1845 map of Eagles Nest Tract (William Walker, Deputy Surveyor, courtesy of Brant County Museum).

All of the glass tools with retouched edges were identified from macroscopic examination. Microscopic examination of tool edges revealed striations which either ran perpendicular to the working edge or parallel to it. The edges with parallel striations were interpreted as having resulted from use as a knife and those with perpendicular striations from use as a scraper. |It is interesting to note that the use wear on the window glass demonstrates almost exclusive use as knives (six of eight window glass tools had at least one edge used as a knife). Bottle glass tended to be used as spokeshaves or scrapers and bottle glass tools often have use wear on multiple edges (six of twenty bottle glass tools have only one used edge).

The length of use wear ranges from 5.2 mm to 41.8mm. Edge angles were estimated with a protractor to the nearest 10 degrees. Edge angles ranged from 20 – 120 degrees. A total of 78 edges were used on the 29 tools. Based on edge shape, edge angle and micro-striations visible under 10-50x magnification, tool edges were classified according to inferred function: 14 knives (edge angles 20-100°), 8 spokeshaves (edge angles 60-100°), and 56 scrapers (edge angles 50-110°). Scraper use wear was produced primarily by utilization. In some cases, edges were retouched to strengthen them prior to use. Examples of microscopic use wear on glass and stoneware tools are provided in Figures 5 – 10 (numbers in parentheses correspond to artifact numbers in Figure 3, Figure 4, and Table 1).

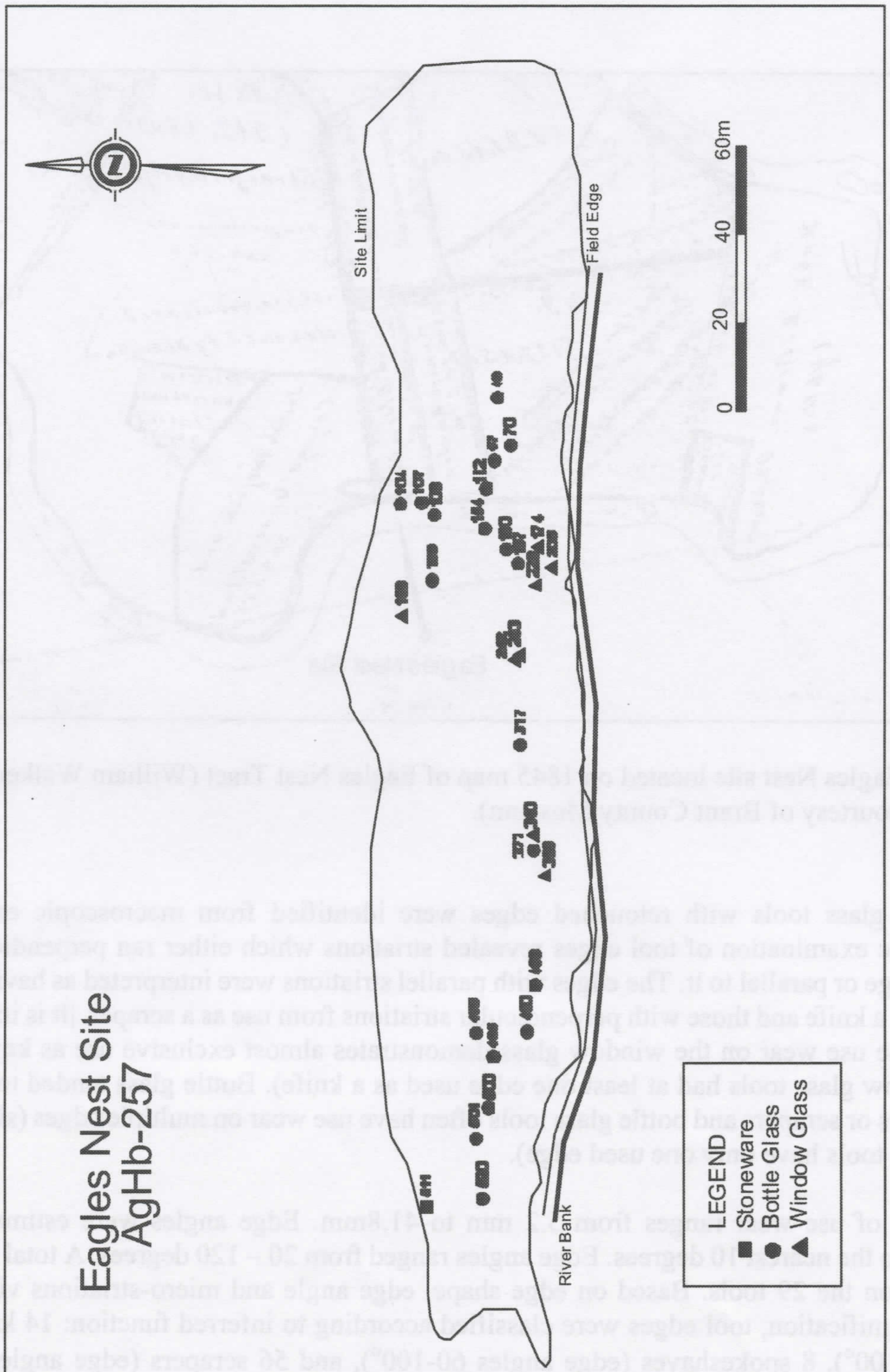

Figure 3. Distribution of worked glass and stoneware on the surface of the Eagles Nest site (artifact numbers correspond with those in Table 1 which provides details on each tool).

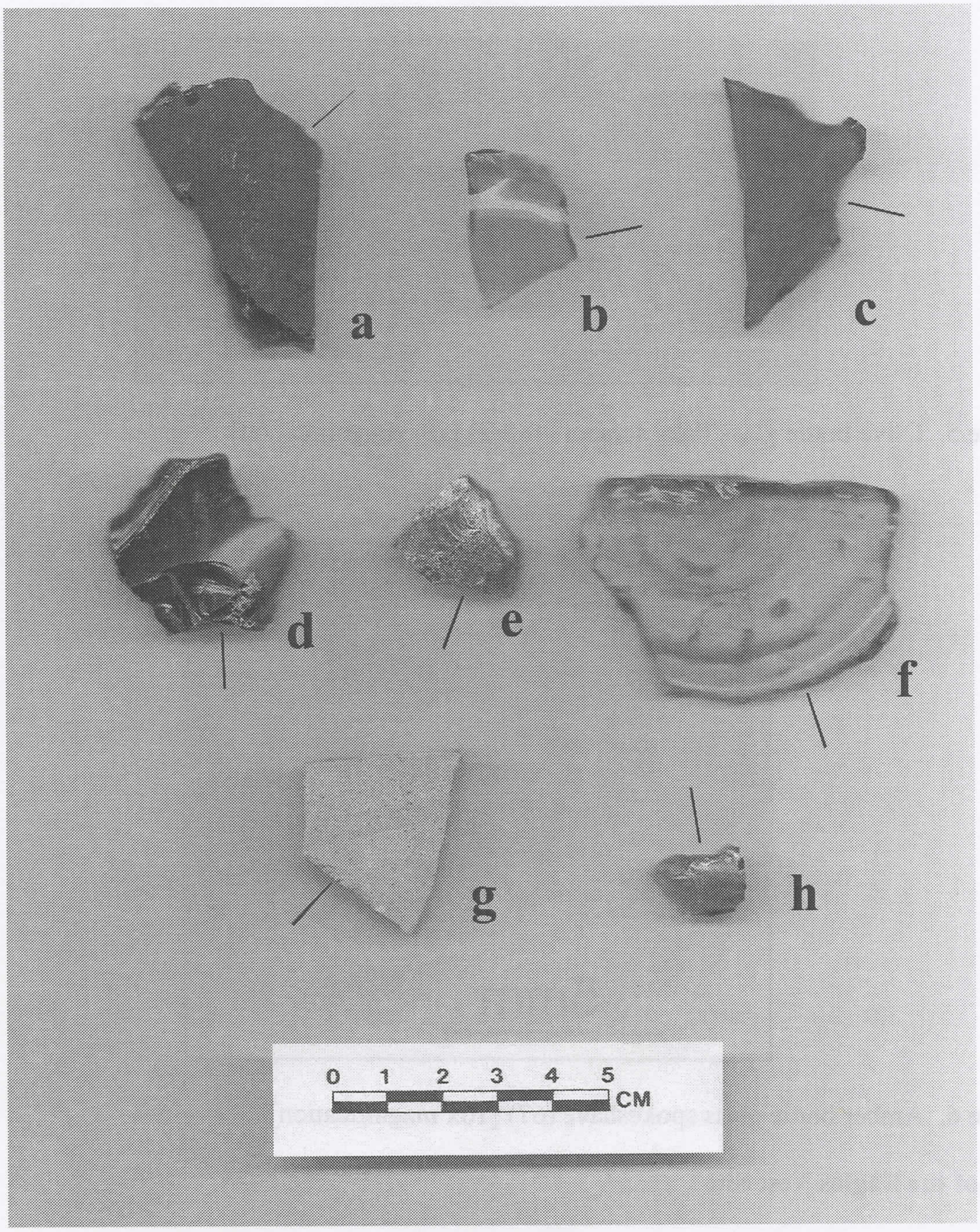

Figure 4. Worked glass and stoneware artifacts from Eagles Nest (AgHb-257) – lines point to primary utilized edge. [a – black bottle glass scraper (108); b – blue bottle glass scraper (104); c – amber bottle glass spokeshave (67); d – black bottle glass spokeshave (480); e – amber bottle glass scraper (180); f – amethyst bottle glass scraper (112); g – stoneware scraper (511); h – olive bottle glass flake scraper (485-2)]

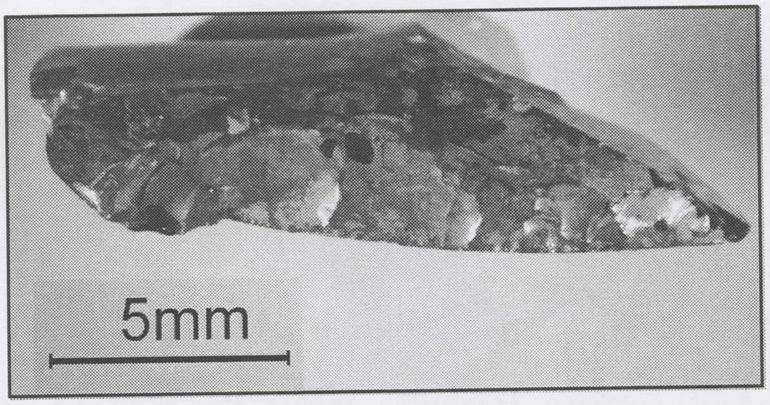

Figure 5. Olive bottle glass flake scraper (485-2) [10x magnification].

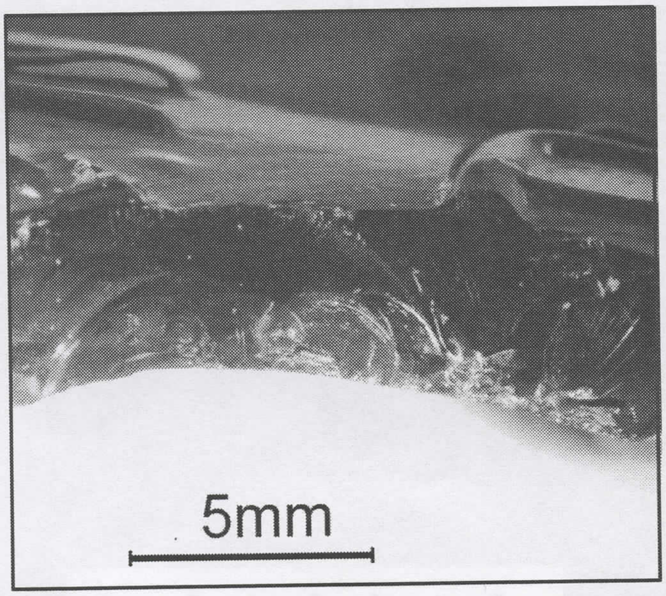

Figure 6. Amber bottle glass spokeshave (67) [10x magnification].

Date of the Eagles Nest Site

The Eagles Nest site experienced two main occupations - Princess Point and nineteenth century Six Nations. The date of the nineteenth century Six Nations occupation is based on historical information and archaeological evidence. As previously noted, historical maps and survey records indicate a Cayuga presence at Eagles Nest from 1812-1845. Archaeological evidence supports use of the site from 1800 - 1900. Most of the nineteenth century artifacts date to 1820 - 1850. Window glass thickness ranges from 0.8mm - 3.0mm (mean thickness 1.7mm) and refined white earthenware is primarily whiteware with sponged and flow blue sherds common (only 10% pearlware and creamware). There is only one white granite sherd. No coins were found.

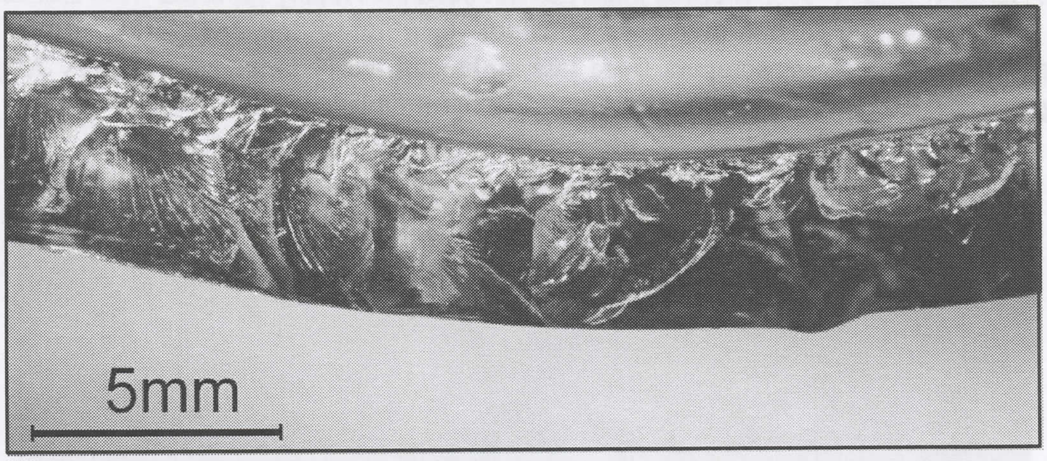

Figure 7. Amethyst bottle glass scraper (112) [10x magnification].

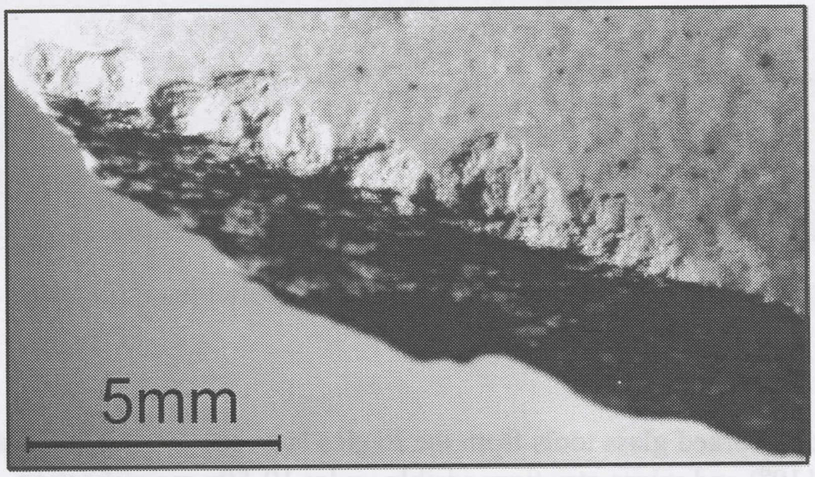

Figure 8. Stoneware scraper (511) [10x magnification].

The worked glass dates mainly to 1860-1890. The thickness of worked window glass has a tight range of 1.8-2.2 and a mean of 1.9mm, implying an 1860-1880 date. The amethyst bottle base scraper post-dates 1880. The presence of two embossed panel bottle scrapers and a cobalt blue bottle scraper indicates a post-1870 date. Several worked fragments of black bottle glass are in the collection - black bottle glass typically disappears from sites after 1890. In summary, the worked glass seems to post-date the 1820-1850 occupation.

Discussion

Flaked glass tools have been found in eighteenth, nineteenth, and twentieth-century archaeological contexts in northwestern Canada (Martindale and Jurakic 2006), the southeastern and northeastern

United States (Jordan 2008; Silliman 2009; Wilkie 1996), Australia (Harrison 2000, 2003), and southern Africa (Smith 1997). Worked glass has not been previously reported from archaeological sites in southern Ontario, but in the early 1980s Jean Luc-Pilon (1987:220; 1990:132-134) excavated black bottle glass scrapers from late eighteenth-early nineteenth century Algonquian hunter-gatherer sites on the lower Severn River, northern Ontario.

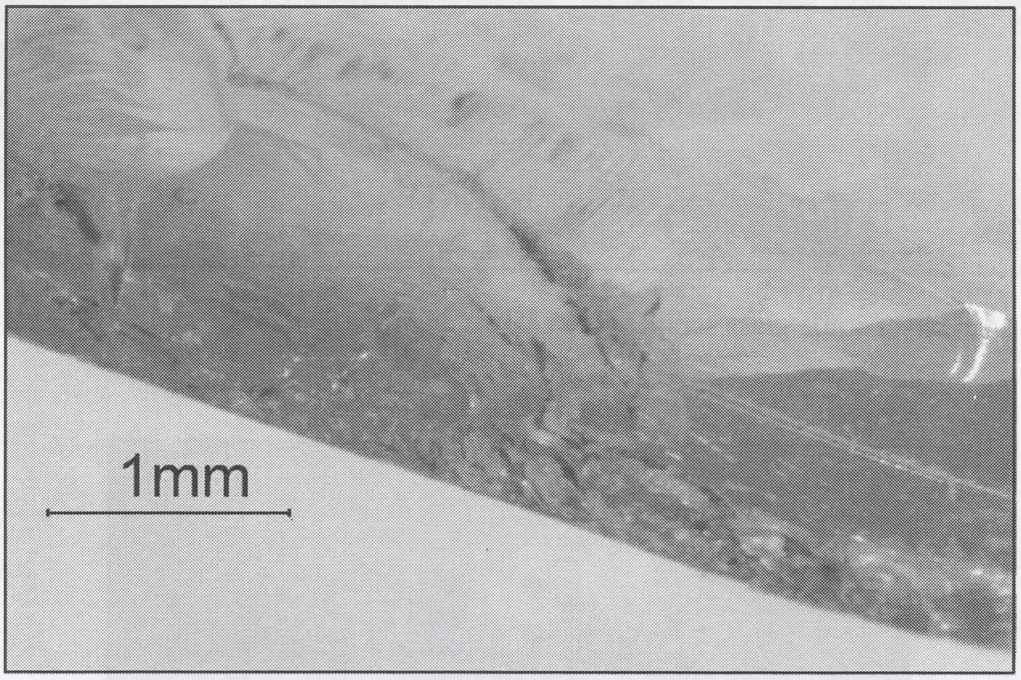

Figure 9. Clear bottle glass knife (185) – note striations parallel to cutting edge [30x magnification].

The majority of the worked glass tools from the Eagles Nest site functioned as scrapers based on edge angles (50-110^{o}) and micro-striations visible under 10-50x magnification. Scraper use wear was produced primarily by utilization. In some cases, edges were retouched to strengthen them prior to use. No replication experiments were completed for this paper, but experimental work by Martindale and Jurakic (2006) demonstrated that scraping of wood and other hard materials detaches more and larger flakes than scraping softer materials such as hide. Paul General (personal communication 2009, Six Nations Eco-Centre) and Aubrey Cannon (personal communication 2009, McMaster University) independently interpreted the large bottle glass scrapers as tools for gutting and scaling fish. Alternatively, the smaller bottle and window glass scrapers may have been used to smooth wood. Paul General (personal communication 2009), Director of the Six Nations Eco-Centre, has memories of his father using window glass shards as sandpaper to smooth the rough edges of small wood carvings as recently as the 1950s at Six Nations on the Grand!

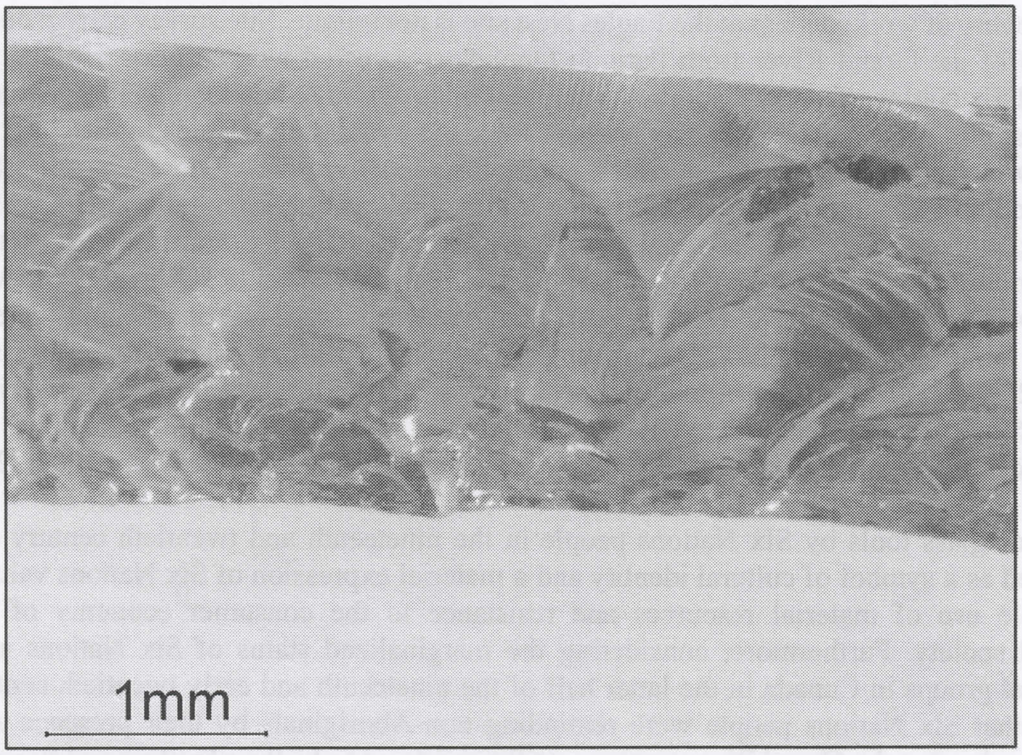

Figure 10. Window glass spokeshave (360) – note retouch and microflaked edge [40x magnification].

Another important aspect of worked glass from Eagles Nest is the high curation rate of tools, demonstrated by the number of modified edges per tool. The majority of the tools show use on two or more edges. One piece of amethyst bottle glass was used on six edges before it was discarded! Curation of glass tools implies transport of the glass to the site and that the distance between the source of the glass (probably a household midden) and the site is several kilometres. In other words, the users of the glass tools, that date 1860-1890, probably were visitors to the site instead of residents. This inference is verified by historical records that indicate a transfer of land ownership in the Eagles Nest Tract to non-Aboriginals by the mid-1840s (Burwell 1843-1846), the resettlement of Six Nations people in Onondaga Township centred around Ohsweken by the early 1850s (Ferris 2009), and the lack of ceramics (except for stoneware sherds, one of which shows possible utilization along one edge) and other domestic artifacts that indicate a residential occupation of Eagles Nest site in the late nineteenth century. It is conceivable that, unless flooding or farming destroyed the cabins of the early and mid-nineteenth century Cayuga and Tutelo residents and non-Aboriginal owners enforced trespass laws, late nineteenth century Six Nations visitors to the site, presumably fishing parties, stayed overnight in the old cabins. Paul General notes (personal communication 2009) that in the contemporary Six Nations community, old cabins still exist and when they were abandoned in the early and mid-twentieth century, residents left serviceable furniture and other articles in the cabin that could be used or salvaged. Thus, when Cayuga and Tutelo residents vacated Eagles Nest in the late 1840s, they may have left behind fully habitable cabins.

The discovery of worked glass at the Eagles Nest site is not unique. Site survey carried out in 2002 and 2003 of the Grand River from Paris to Onondaga revealed worked glass artifacts from 11 identified Six Nations sites, and additional isolated finds of worked glass as well, sometimes from shovel test pits. When situated on Six Nations sites, the worked glass tends to date later than the sites on which it was found. In general, worked glass tools are on window glass of 1.8 mm or thicker and on clear, black, and amethyst bottle glass, indicating use and discard ca. 1850-1890. However, worked window glass ranging in thickness from 0.8 - 1.6 mm has been identified in artifact collections from pre-1830 Six Nations sites, such as Vansickle 1(AgHa-19), Davisville 1 (AgHb-241) and Davisville 2 (AgHb-242). In other words, Six Nations people were flaking window, table, and bottle glass throughout the nineteenth century, and probably earlier. Kurt Jordan (2008: 313) identified a possible piece of worked bottle glass from an early eighteenth century Seneca homestead, the Townley-Read site, in New York State. Further east in Connecticut, the eighteenth century Pequot were also using glass tools (Silliman 2009:223-224).

The use of glass tools by Six Nations people in the nineteenth and twentieth century could be interpreted as a symbol of cultural identity and a material expression of Six Nations values about sustainable use of material resources and resistance to the consumer economy of Western industrial society. Furthermore, considering the marginalized status of Six Nations and other Aboriginal groups in Canada in the latter half of the nineteenth and early twentieth century, it is possible that Six Nations people were reminding non-Aboriginals by their presence at choice fishing locales that the Grand River tract was still considered to be their hunting and fishing lands. On the other hand, a more parsimonious explanation of Six Nations use of worked glass is an economic one - many Six Nations people in the late nineteenth century were an impoverished underclass of subsistence farmers and labourers and glass shards would have been a cheap and handy source of expedient sharp-edged cutting and scraping tools. In addition, for certain tasks like scaling large numbers of fish, a glass scraper would offer less stress on the user's wrist than an iron or steel knife (Paul General, personal communication 2009).

In southern Ontario, late eighteenth and nineteenth century Aboriginal sites can be differentiated from settler sites on the basis of the presence of trade silver, glass beads, gunflints and ammunition, bones of wild animals and fish, and punched-hole coins (Ferris 2009; Warrick 1998, 2003). The ubiquity of worked glass on all sites interpreted as Six Nations in Brant County adds another item to the list of artifact types that help to identify Aboriginal sites in the archaeological record. It would be prudent to examine existing collections from both Aboriginal and settler sites of the nineteenth century to see if worked glass is in fact exclusive to Aboriginal sites.

Acknowledgments: The survey that led to the discovery of Eagles Nest was part of a multi-year archaeological research project funded by the Social Sciences and Humanities Research Council of Canada from 2002-2005. The Brantford Campus, Wilfrid Laurier University generously provided logistical support and lab space. The field crew in 2003 consisted of Drew Hussey, Nathalie Lachance, Kevin Smith, and Joanne Thomas. Access to the microscope and digital camera was provided by Dr. Aubrey Cannon, Department of Anthropology, McMaster University and Meghan Burchell provided helpful assistance with the equipment.

Table 1. Worked Glass Tools from Eagles Nest (AgHb-257).

Prov.	Glass Type	Length (mm)	Width (mm)	Thickness (mm)	No. of worked edges	Length of worked edge (mm)	Edge angle (degree)	Tool type
48	black bottle base	57.0	26.7	8.3	3	20.1 15.2 11.3	70 80 70	scraper (retouched-s)
67	amber bottle (embossed)	45.1	25.8	4.3	1	12.2	80	spokeshave (retouched-cc)
70	clear bottle	25.0	16.2	3.7	2	17.8 6.6	50 120	scraper (retouched-s) scraper (utilized-s)
104	blue bottle neck	26.9	18.8	2.7	1	7.0	80	scraper (utilized-cc)
107	clear bottle base	57.7	27.7	6.0	5	10.6 17.0 9.7 9.9 12.1	80 80 90 90 80	scraper (retouched-s) scraper (utilized-cv) scraper (utilized-s) scraper (retouched-s) knife (utilized-s)
108	black bottle	52.1	27.5	6.4	5	13.2 10.2 8.5 8.7 12.7	90 110 90 90 70	scraper (retouched-s) scraper (utilized-cv) scraper (utilized-s) scraper (utilized-s) scraper (utilized-cv)

112	amethyst bottle base	59.0	40.0	8.7	6	21.6	90	spokeshave (utilized-cc)
						17.2	70	scraper (retouched-cv)
						19.4	90	scraper (utilized-s)
						13.0	90	scraper (retouched-s)
						15.4	70	scraper (retouched-s)
						41.8	100	scraper (retouched-cv)
154a	amber bottle top	23.9	23.1	5.2	1	14.0	50	knife (utilized-s)
154b	amber bottle	24.8	18.3	5.4	2	11.9	60	scraper (utilized-cv)
						13.8	70	scraper (retouched-s)
174	window	15.1	10.0	1.9	1	6.8	70	knife (utilized-cv)
180	amber bottle	22.7	19.1	4.6	2	9.7	80	scraper (utilized-s)
						11.6	90	scraper (retouched-s)
185	clear bottle (embossed)	28.2	18.4	2.3	1	8.6	30	knife (utilized-s)
188	window	13.4	11.0	1.8	2	7.0	60	knife (utilized-s)
						9.6	90	scraper (utilized-s)
197	clear bottle	20.8	18.9	2.3	2	7.0	70	spokeshave (utilized-cc)
						6.2	70	scraper (utilized-s)
205	window	12.6	10.7	1.9	2	9.5	40	knife (retouched-s)
						5.3	90	scraper (utilized-s)

228	window	26.9	11.2	1.8	4	9.3	90	scraper (retouched-s)
						8.7	90	knife (utilized-s)
						7.5	90	scraper (utilized-s)
						5.2	90	spokeshave (retouched-cc)
262	window	19.4	13.2	1.8	2	18.0	90	knife (utilized-s)
						8.5	80	scraper (retouched-s)
263	window	31.2	19.5	1.9	3	10.6	70	knife (retouched-s)
						12.3	80	scraper (retouched-s)
						5.5	70	scraper (retouched-s)
317	black bottle	18.1	13.9	4.3	2	14.8	70	knife (utilized-cv)
						14.0	90	scraper (retouched-cv)
360	window	15.8	12.0	2.2	1	6.4	80	spokeshave (retouched-cc)
377	black bottle shoulder	23.8	17.6	2.8	1	12.0	100	knife (retouched-s)
396	window	21.6	11.3	2.1	3	7.7	90	scraper (retouched-s)
						5.6	90	scraper (utilized-s)
						6.8	90	scraper (retouched-s)
468	black bottle	36.4	31.4	5.7	5	25.0	110	scraper (utilized-s)
						17.1	110	scraper (utilized-cv)
						17.2	90	scraper (utilized-s)
						7.3	90	scraper (utilized-s)
						10.8	90	scraper (utilized-s)

480	black bottle	34.2	33.5	6.9	5	14.0	80	scraper (retouched-s)
						12.0	90	scraper (utilized-s)
						8.7	90	spokeshave (utilized-cc)
						13.3	60	spokeshave (retouched-cc)
						27.2	90	scraper (utilized-s)
485-2	olive bottle flake	17.4	13.5	4.0	2	12.5	60	scraper (retouched-cv)
						5.2	30	scraper (retouched-s)
499	clear bottle	23.1	22.2	2.6	1	22.2	90	scraper (utilized-s)
500	black bottle base	65.6	58.7	7.3	4	9.0	20	knife (utilized-s)
						15.0	80	scraper (utilized-cv)
						7.7	45	scraper (utilized-s)
						22.0	70	scraper (utilized-s)
501	aqua bottle top	22.5	16.4	4.6	4	11.8	70	knife (retouched-s)
						13.4	100	spokeshave (utilized-cc)
						8.9	90	scraper (utilized-s)
						9.5	90	scraper (utilized-s)
511	stoneware	33.8	28.7	8.9	2	14.9	90	scraper (utilized-s)
						12.6	90	
520	clear bottle neck	26.5	20.8	2.9	3	7.6	70	scraper (retouched-s)
						7.5	40	knife (utilized-s)
						10.9	90	scraper (utilized-s)

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